PSX ONE CONSOLE

In this part of the site we're going to talk about what probably was one the most important (if not the most)videogames console. This console was the first one in have a 3D Metal Gear Solid game and the one that have the first appearances of now classic characters like Crash Bandicoot, Spyro or Klonoa, it was the console that took the Final Fantasy series to another level when FF7 was released.

Most of this information is taken from WIKIPEDIA.

The PlayStation (abbreviated PS, PSone, PS1, or informally as PSX) is a 32-bit fifth generation video game console released by Sony Computer Entertainment in December 1994.

The PlayStation was the first of the PlayStation series of console and handheld game devices. Successor consoles and upgrades include the Net Yaroze, PS one, PocketStation, PlayStation 2, a revised slimline PlayStation 2, PlayStation Portable, a revised PlayStation Portable Slim and Lite, another revised PSP 3000, PSX, and the PlayStation 3 (20GB, 40GB, 60GB, 80GB, and 160GB). On March 31 2005, the PlayStation and PS one reached a combined total of 102.49 million units shipped, becoming the first video game console to reach the 100 million mark. As of July 20, 2008, the PlayStation has sold 102 million units. Sony ceased production of the PlayStation on March 23, 2006, over 11 years since it was first produced.

A - HISTORY:
The first conceptions of the PlayStation date back to 1986. Nintendo had been attempting to work with disc technology since the Famicom, but the medium had problems. Its rewritable magnetic nature could be easily erased (thus leading to a lack of durability), and the discs were a copyright infringement danger. Consequently, when details of CDROM/XA (an extension of the CD-ROM format that combines compressed audio, visual and computer data, allowing all to be accessed simultaneously) came out, Nintendo was interested. CD-ROM/XA was being simultaneously developed by Sony and Philips. Nintendo approached Sony to develop a CD-ROM add-on, tentatively titled the "SNES-CD". A contract was signed, and work began. Nintendo's choice of Sony was due to a prior dealing: Ken Kutaragi, the person who would later be dubbed "The Father of PlayStation", was the individual who had sold Nintendo on using the Sony SPC-700 processor for use as the eight-channel ADPCM sound synthesis set in the Super Famicom/ SNES console through an impressive demonstration of the processor's capabilities.

Sony also planned to develop another, Nintendo compatible, Sony-branded console, but one which would be more of a home entertainment system playing both Super Nintendo cartridges and a new CD format which Sony would design. This was also to be the format used in SNES-CD discs, giving a large degree of control to Sony despite Nintendo's leading position in the video gaming market. The DualShock controller.

The SNES-CD was to be announced at the June 1991 Consumer Electronics Show (CES). However, when Hiroshi Yamauchi read the original 1988 contract between Sony and Nintendo, he realized that the earlier agreement essentially handed Sony complete control over any and all titles written on the SNES CD-ROM format. Yamauchi decided that the contract was totally unacceptable and he secretly canceled all plans for the joint Nintendo-Sony SNES CD attachment. Instead of announcing a partnership between Sony and Nintendo, at 9 a.m. the day of the CES, Nintendo chairman Howard Lincoln stepped onto the stage and revealed that Nintendo was now allied with Philips, and Nintendo was planning on abandoning all the previous work Nintendo and Sony had accomplished. Lincoln and Minoru Arakawa had, unbeknown to Sony, flown to Philips headquarters in Europe and formed an alliance of a decidedly different nature—one that would give Nintendo total control over its licenses on Philips machines.

After the collapse of the joint project, Sony considered halting their research, but ultimately the company decided to use what they had developed so far and make it into a complete, stand alone console. As a result, Nintendo filed a lawsuit claiming breach of contract and attempted, in U.S. federal court, to obtain an injunction against the release of the PlayStation, on the grounds that Nintendo owned the name. The federal judge presiding over the case denied the injunction and, in October 1991, the first incarnation of the new Sony PlayStation was revealed. However, it is theorized that only 200 or so of these machines were ever produced. PlayStation Memory Card.

By the end of 1992, Sony and Nintendo reached a deal whereby the "Sony Play Station" would still have a port for SNES games, but Nintendo would own the rights and receive the bulk of the profits from the games, and the SNES would continue to use the Sony-designed audio chip. However, Sony decided in early 1993 to begin reworking the "Play Station" concept to target a new generation of hardware and software. As part of this process the SNES cartridge port was dropped and the space between the names was removed.

B - LAUNCH:
The PlayStation was launched in Japan on December 3, 1994, North America on September 9, 1995, Europe on September 29, 1995, and Oceania in November 1995. The launch price in the American market was US$299 (a price point later used by its successor, the PlayStation 2), and Sony enjoyed a very successful launch with titles of almost every genre, including Battle Arena Toshinden, Twisted Metal, Tekken, Warhawk, Air Combat, Philosoma, and Ridge Racer. Almost all of Sony's and Namco's launch titles went on to spawn numerous sequels.

The PlayStation was also able to generate interest with a unique series of advertising campaigns. Many of the ads released at the time of launch were full of ambiguous content which had many gamers rabidly debating their meanings. The most well-known launch ads include the "Enos Lives" campaign, and the "U R Not e" ads (the "e" in "U R Not e" was always colored in red, to symbolize the word "ready", and the "Enos" meant "ready Ninth Of September", the U.S. launch date). The Enos ad could also be read as Sony written backward with phonetic sound of "E" replacing the "y". It is believed that these ads were an attempt to play off the gaming public's suspicion towards Sony as an unknown, untested entity in the video game market. The PlayStation 3 slogan, "PLAY B3YOND", resembles this slogan, as the 3 is red.

The PlayStation logo was designed by Ryan Harrington, who also designed the logo for Sony's VAIO computer products.

C - DEMO DISK:
The PlayStation shipped with a Demo Disk called "Demo 1" which on the European release (PBPX 95008) included playable demos of:

Bust A Groove

Crash Bandicoot 3 - Warped

Gran Turismo

Medievil

Kula World

Spyro the Dragon

Tekken 3

Tombi

Tomb Raider III - The Adventures of Lara Croft

And contained video previews of:

Metal Gear Solid

Spice World

D - TITLES:
As of September 30, 2007, 7,978 software titles have been released worldwide (counting games released in multiple regions as separate titles). As of March 31, 2007, the cumulative software shipment was at 962 million units. The very last game for the system was FIFA Football 2005. But there had been other games released in 2006 or 2007 (most of them rereleases of japaneses games like Final Fantasy 7 or others).

The OK and Cancel buttons on most of the Japanese PlayStation games are reversed in their North American and European releases. In Japan, the This image is a candidate for speedy deletion. It may be deleted after Sunday, 21 October 2007. button (maru, right) is used as the OK button, while the This image is a candidate for speedy deletion. It may be deleted after Sunday, 21 October 2007. button (batsu, wrong) is used as the Cancel one. North American and European releases have the X button or the Circle buttons as the OK button, while the Square or the Triangle buttons are used as the Cancel ones. However, a few games such as Squaresoft's Vagrant Story, Final Fantasy VII, and Final Fantasy Tactics, and Konami's Metal Gear Solid, have the buttons remain in the same Japanese configuration in their North American and European releases. These Japanese button layouts still apply to other PlayStation consoles, such as the PlayStation Portable (PSP), PlayStation 2 and the PlayStation 3. This is because in the early years Sony America (SCEA), Sony Europe (SCEE) and Sony Japan (SCEJ) had different development and testing documents (TRCs) for their respective territories.

PRODUCTION RUN: Lasting over 11 years, the PlayStation enjoyed one of the longest production runs in the video game industry. On March 23, 2006, Sony announced the end of production. However, the last game for the PlayStation was released on September 29, 2006.

VARIANTS: The PlayStation went through a number of variants during its production run, each accompanied by a change in the part number. From an external perspective, the most notable change was the gradual reduction in the number of external connectors on the unit. This started very early on—the original Japanese launch units (SCPH-1000) had an S-Video port, which was removed on the next release. This also led to the strange situation where the US and European launch units had the same part number series (SCPH-100x) as the Japanese launch units, but had different hardware (Rev. C silicon and no S-Video port)—they were the same as the Japanese SCPH-3000, so for consistency should have been SCPH-3001 and SCPH-3002 (this numbering was used for the Yaroze machines, which were based on the same hardware and numbered DTL-H3000, DTL-H3001, and DTL-H3002).

Also, the first models (DTL-H1000, DTL-H1001, DTL-H1002) had some problems with printf() function and developers had to use another function instead. This series of machines had a reputation for CD drive problems—the optical pickup sled was made of thermoplastic, and eventually developed wear spots that moved the laser into a position where it was no longer parallel with the CD surface—a modification was made that replaced the sled with a die-cast one with hard nylon inserts, which corrected the problem.

With the release of the next series (SCPH-500x), the numbers moved back into sync. A number of changes were made to the unit internally (CD drive relocated, shielding simplified, PSU wiring simplified) and the RCA jacks and RFU power connectors were removed from the rear panel. This series also contained the SCPH-550x and SCPH-555x units, but these appear to have been bundle changes rather than actual hardware revisions.

These were followed by the SCPH-700x and SCHP-750x series—they are externally identical to the SCPH-500x machines, but have internal changes made to reduce manufacturing costs (for example, the system RAM went from 4 chips to 1, and the CD controller went from 3 chips to 1).

The final revision to the original PlayStation was the SCPH-900x series—these had the same hardware as the SCPH-750x machines with the exception of the removal of the parallel port and a slight reduction in the size of the PCB. The removal of the parallel port was probably partly because no official add-on had ever been released for it, and partly because it was being used to connect cheat cartridges that could be used to defeat the copy prevention.

The PS one was based on substantially the same hardware as the SCPH-750x and 900x, but had the serial port removed, the controller / memory card ports moved to the main PCB and the power supply replaced with a DC-DC converter that was also on the main PCB.

With the early units, many gamers experienced skipping full-motion video or dreaded physical "ticking" noises coming from their PlayStations. The problem appears to have come from poorly placed vents leading to overheating in some environments—the plastic moldings inside the console would warp very slightly and create knock-on effects with the laser assembly. The solution was to ensure the console was sat on a surface which dissipated heat efficiently in a well vented area, or raise the unit up slightly by propping something at its edges. A common fix for already affected consoles was to turn the PlayStation sideways or upside-down (thereby using gravity to cancel the effects of the warped interior) although some gamers smacked the lid of the PlayStation to make a game load or work.

Sony then released a version dubbed "Dual Shock", which included a controller with two analog sticks and a built-in force-feedback feature.

Another version that was colored blue (as opposed to regular console units that were grey in color) was available to game developers and select press. Later versions of this were colored green—on a technical level, these units were almost identical to the retail units, but had a different CD controller in them that did not require the region code found on all pressed disks, since they were intended to be used with CD-R media for debugging. This also allowed the use of discs from different regions, but this was not officially supported; different debug stations existed for each region. The two different color cases were not cosmetic—the original blue debug station (DTL-H100x, DTL-H110x) contained "Revision B" silicon, the same as the early retail units (these units had silicon errata that needed software workarounds), the green units (DTL-H120x) had Rev. C hardware. As part of the required tests, the user had to test the title on both. Contrary to popular belief, the RAM was the same as the retail units at 2 MB. The firmware was nearly identical—the only significant change was that debug printf()s got sent to the serial port if the title didn't open it for communications—this used a DTL-H3050 serial cable (the same as the one used for the Yaroze).

A white version was also produced that had the ability to play VCDs—this was only sold in Asia, since that format never really caught on anywhere else. From a developer perspective, the white PSX could be treated exactly like any other NTSC:J PlayStation.

The PS1 with a model number of SCPH-1001 has been reported to be a very good sounding compact disc player rivaling audiophile CD players from high end audio manufacturers.

CHIPPED CONSOLES:
The installation of a modchip allowed the PlayStation's capabilities to be expanded, and several options were made available. By the end of the system's life cycle almost anyone with minimal soldering experience was able to realize the modification of the console. Such a modification allowed the playing of games from other regions, such as PAL titles on a NTSC console, or allowed the ability to play copies of original games without restriction. Modchips allow the playing of games recorded on a regular CD-R. This created a wave of games developed without official approval using free GNU compiler tools, as well as the reproduction of original discs. With the introduction of such devices the console was very attractive to programmers and illegal copiers alike.

Anyone seeking to create copies of games that would work correctly faced several issues at the time, as the discs that were produced by Sony were designed to be difficult to copy — and impossible to copy on recordable media. Discs were manufactured with a black-colored plastic, transparent only to the infrared radiation used by the CD-ROM drive's laser. This was found to offer little protection. Additionally, the discs were mastered with a specific wobble in the lead-in area. This wobble encodes a four-character sequence which is checked by the CD-ROM drive's controller chip. The drive will only accept the disc if the code is correct. This string varies depending on the region of the disk—"SCEI" for NTSC:J machines, "SCEA" for NTSC:U/C machines, "SCEE" for PAL machines and "SCEW" for the Net Yaroze.

Since the tracking pattern is pressed into the disc at the time of manufacture, this cannot be reproduced on a CD-R recorder. Some companies (notably

Datel) did manage to produce discs that booted on unmodified retail units, but this required special equipment and can only be done with "pressed" discs. However, inexpensive modchips were created that simply injected the code to the appropriate connections to the controller chip, which provided an easy way of bypassing these measures. The other issue is that most PC drives used Mode 1 or Mode 2/Form 1 (2048 bytes/sector) and the PSX uses a mixed-mode format with most data in Mode 2/Form 1 and streaming audio/video data in Mode 2/Form 2, which most CD-R drives at the time could not handle well. Newer drives were able to correctly handle these variations.

The creation and mass-production of these inexpensive modchips, coupled with their ease of installation, marked the beginning of widespread console videogame copyright infringement. Also, CD burners were made available around this time. Prior to the PlayStation, the reproduction of copyrighted material for gaming consoles was restricted to either enthusiasts with exceptional technical ability, or others that had access to CD manufacturers. With this console, amateurs could replicate anything Sony was producing for a mere fraction of the MSRP.

NET YAROZE:

A version of the PlayStation called the Net Yaroze was also produced. It was more expensive than the original PlayStation, colored black instead of the usual gray, and most importantly, came with tools and instructions that allowed a user to be able to program PlayStation games and applications without the need for a full developer suite, which cost many times the amount of a PlayStation and was only available to approved video game developers. Naturally, the Net Yaroze lacked many of the features the full developer suite provided. Programmers were also limited by the 2 MB of total game space that Net Yaroze allowed. The amount of space may seem small, but games like Ridge Racer ran entirely from the system RAM (except for the streamed music tracks). It was unique in that it was the only officially retailed Sony PlayStation with no regional lockout; it would play games from any territory. It would not however play CDR discs, so it was not possible to create self-booting Yaroze games without a modified Playstation.

PSONE:

The PS one (also PSone, PSOne, or PS1), launched in 2000, is Sony's smaller (and redesigned) version of its PlayStation video game console. The PS one is considerably smaller than the original PlayStation (dimensions being 38 mm × 193 mm × 144 mm versus 45 mm × 260 mm × 185 mm). It was released on July 7, 2000, and went on to outsell all other consoles—including Sony's own brand-new PlayStation 2—throughout the remainder of the year. Sony also released a small LCD screen and an adaptor to power the unit for use in cars. The PS one is fully compatible with all PlayStation software. The PlayStation is now officially abbreviated as the "PS1" or "PS one."[citation needed] There were three differences between the "PS one" and the original, the first one being cosmetic change to the console, the second one was the home menu's Graphical User Interface, and the third being added protection against the modchip by changing the internal layout and making previous-generation modchip devices unusable. The PS one also lacks the original PlayStation's parallel and serial ports. The serial port allowed multiple consoles to be connected for multiplayer or for connecting a console to debugging software.

PLAYSTATION MODELS:

The last digit of the PlayStation model number denotes the region in which it was sold:

0 is Japan (Japanese boot ROM, NTSC:J region, NTSC Video, 100V PSU)

1 is USA/Canada (English boot ROM, NTSC:U/C region, NTSC Video, 110V PSU)

2 is Europe/PAL (English boot ROM, PAL region, PAL Video, 220V PSU)

3 is Asia (Japanese boot ROM, NTSC:J region, NTSC video, 220V PSU)

Model:	Case:	BIOS:	Hardware:	Region:	A/V Direct Out:	Parallel Port:	Serial Port:	Sound Scope:	Notes:
SCPH-1000	Original (Grey)	Unknown (09/22/94)	Rev. A	NTSC-J	Yes	Yes	Yes	No	CD-ROM drive. S-Video direct out.
SCPH-1001	Original (Grey)	2.2 (12/04/95)	Rev. B	NTSC-U/C	Yes	Yes	Yes	No	CD-ROM drive. Based on SCPH-3000 series.
SCPH-1002	Original (Grey)	2.0 (05/10/95)	Rev. B	PAL	Yes	Yes	Yes	No	CD-ROM drive. Based on SCPH-3000 series.
SCPH-1002	Original (Grey)	2.1 (07/17/95)	Rev. B	PAL	Yes	Yes	Yes	No	CD-ROM drive. Based on SCPH-3000 series.
SCPH-1002	Original (Grey)	2.2 (12/04/95)	Rev. B	PAL	Yes	Yes	Yes	No	CD-ROM drive. Based on SCPH-3000 series.
SCPH-3000	Original (Grey)	1.1 (01/22/95)	Rev. B	NTSC-J	Yes	Yes	Yes	No	CD-ROM drive.
SCPH-3500	Original (Grey)	2.1 (07/17/95)	Rev. B	NTSC-J	Yes	Yes	Yes	No	
SCPH-5000	Original (Grey)	2.2 (12/04/95)	Rev. C	NTSC-J	No	Yes	Yes	No	CD-ROM drive re-located on right side of CD bay. A/V direct out and RFU power connector removed. Model numbers synchronized worldwide.
SCPH-5001	Original (Grey)	Unknown (Unknown)	Rev. C	NTSC-U/C	No	Yes	Yes	No	
SCPH-5002	Original (Grey)	Unknown (Unknown)	Rev. C	PAL	No	Yes	Yes	No	
SCPH-5003	Original (Grey)	Unknown (Unknown)	Rev. C	NTSC-J	No	Yes	Yes	No	
SCPH-5500	Original (Grey)	3.0 (09/09/96)	Rev. C	NTSC-J	No	Yes	Yes	No	
SCPH-5501	Original (Grey)	3.0 (11/18/96)	Rev. C	NTSC-U/C	No	Yes	Yes	No	
SCPH-5502	Original (Grey)	3.0 (01/06/97)	Rev. C	PAL	No	Yes	Yes	No	
SCPH-5503	Original (Grey)	Unknown (Unknown)	Rev. C	NTSC-J	No	Yes	Yes	No	
SCPH-5552	Original (Grey)	3.0 (01/06/97)	Rev. C	PAL	No	Yes	Yes	No	A very rare Men in Black promotional model exists with a black case and the film's logo on the CD lid.
SCPH-5903	Original (White)	Unknown (Unknown)	Rev. C	NTSC-J	Yes	Yes	Yes	No	Only model capable of playing Video CD movies.
SCPH-7000	Original (Grey)	4.0 (08/18/97)	Rev. C	NTSC-J	No	Yes	Yes	No	DualShock now standard. Introduction of Sound Scope. Available in midnight blue as promotional item to celebrate the 10 millionth PlayStation sold.
SCPH-7001	Original (Grey)	4.1 (12/16/97)	Rev. C	NTSC-U/C	No	Yes	Yes	No	DualShock now standard. Introduction of Sound Scope. Available in midnight blue as promotional item to celebrate the 10 millionth PlayStation sold.
SCPH-7002	Original (Grey)	4.1 (12/16/97)	Rev. C	PAL	No	Yes	Yes	No	DualShock now standard. Available in midnight blue as promotional item to celebrate the 10 millionth PlayStation sold.
SCPH-7003	Original (Grey)	3.0 (11/18/96)	Rev. C	NTSC-J	No	Yes	Yes	No	
SCPH-7500	Original (Grey)	Unknown (Unknown)	Rev. C	NTSC-J	No	Yes	Yes	No	
SCPH-7501	Original (Grey)	4.1 (12/16/97)	Rev. C	NTSC-U/C	No	Yes	Yes	No	
SCPH-7502	Original (Grey)	4.1 (12/16/97)	Rev. C	PAL	No	Yes	Yes	No	SCPH-7502 B includes Sound Scope as detailed on retail box.

SCPH-7503	Original (Grey)	4.1 (12/16/97)	Rev. C	NTSC-J	No	Yes	Yes	No	
SCPH-9000	Original (Grey)	4.0 (08/18/97)	Rev. C	NTSC-J	No	No	Yes	Yes	High quality CD-ROM drive. Introduction of Sound Scope. Parallel port removed.
SCPH-9001	Original (Grey)	4.1 (12/16/97)	Rev. C	NTSC-U/C	No	No	Yes	Yes	High quality CD-ROM drive. Parallel port removed.
SCPH-9002	Original (Grey)	4.1 (12/16/97)	Rev. C	PAL	No	No	Yes	Yes	High quality CD-ROM drive. Parallel port removed.
SCPH-9003	Original (Grey)	Unknown (Unknown)	Rev. C	NTSC-J	No	No	Yes	Yes	High quality CD-ROM drive. Parallel port removed.
SCPH-100	PS one (White)	4.3 (03/11/00)	Rev. C	NTSC-J	No	No	No	Yes	Redesigned smaller case. Controller and memory card ports integrated onto motherboard. Serial port removed. Has external power supply.
SCPH-101	PS one (White)	4.5 (05/25/00)	Rev. C	NTSC-U/C	No	No	No	Yes	Redesigned smaller case. Controller and memory card ports integrated onto motherboard. Serial port removed. Has external power supply.
SCPH-102	PS one (White)	4.4 (03/24/00)	Rev. C	PAL	No	No	No	Yes	Redesigned smaller case. Controller and memory card ports integrated onto motherboard. Serial port removed. Has external power supply.
SCPH-102	PS one (White)	4.5 (05/25/00)	Rev. C	PAL	No	No	No	Yes	Redesigned smaller case. Controller and memory card ports integrated onto motherboard. Serial port removed. Has external power supply.
SCPH-103	PS one (White)	Unknown (Unknown)	Rev. C	NTSC-J	No	No	No	Yes	Redesigned smaller case. Controller and memory card ports integrated onto motherboard. Serial port removed. Has external power supply.

QUALITY OF CONSTRUCTION:

The first batch of PlayStations used a KSM-440AAM laser unit whose case and all movable parts were completely made out of plastic. Over time, friction caused the plastic tray to wear out—usually unevenly. The placement of the laser unit close to the power supply accelerated wear because of the additional heat, which made the plastic even more vulnerable to friction. Eventually, the tray would become so worn that the laser no longer pointed directly at the CD and games would no longer load. Sony eventually fixed the problem by making the tray out of die-cast metal and placing the laser unit farther away from the power supply on later models of the PlayStation.

Some units, particularly the early 100x models, would be unable to play FMV or music correctly, resulting in skipping or freezing. In more extreme cases the PlayStation would only work correctly when turned onto its side or upside down.

TECHNICAL SPECIFICATIONS:

1 - Central processing unit

MIPS R3000A-compatible (R3051) 32bit RISC chip running at 33.8688 MHz

The chip is manufactured by LSI Logic Corp. with technology licensed from SGI. The chip also contains the Geometry Transformation Engine and the Data Decompression Engine.

Features:

- **Operating performance of 30 MIPS**
- **Bus bandwidth 132 MB/s**
- **4 KB Instruction Cache**
- **1 KB non-associative SRAM Data Cache**

2 - Geometry transformation engine

This engine is inside the main CPU chip. It gives it additional vector math instructions used for the 3D graphics.

Features:

- **Operating performance of 66 MIPS**
- **360,000 flat-shaded polygons per second**
- **180,000 texture mapped and light-sourced polygons per second**

Sony originally gave the polygon count as:

- **1 million flat-shaded polygons per second;**

500,000 texture mapped and light-sourced polygons per second.

These figures were given as a ballpark figure for performance under optimal circumstances, and so are unrealistic under normal usage.

3 - Data decompression engine

This engine is also inside the main CPU. It is responsible for decompressing images and video. Documented device mode is to read three RLE-encoded 16×16 macroblocks, run IDCT and assemble a single 16×16 RGB macroblock. Output data may be transferred directly to GPU via DMA. It is possible to overwrite IDCT matrix and some additional parameters, however MDEC internal instruction set was never documented.

Features:

- **Compatible with MJPEG and H.261 files**
- **Operating Performance of 80 MIPS**
- **Directly connected to CPU Bus**

4 - Graphics processing unit

This chip is separate to the CPU and handles all the 2D graphics processing, which includes the transformed 3D polygons.

Features:

- **Maximum of 16.7 million colors (24-bit color depth)**
- **Resolutions from 256×224 to 640×480**
- **Adjustable frame buffer**
- **Unlimited color lookup tables**
- **Maximum of 4000 8×8 pixel sprites with individual scaling and rotation**
- **Emulation of simultaneous backgrounds (for parallax scrolling)**
- **Flat or Gouraud shading, and texture mapping**

5 - Sound processing unit

Features:

- **Can handle ADPCM sources with up to 24 channels and up to 44.1 kHz sampling rate**

6 - Memory

- **Main RAM: 2 MB**
- **Video RAM: 1 MB**
- **Sound RAM: 512 KB**
- **CD-ROM Buffer: 32 KB**
- **Operating System ROM: 512 KB**
- **PlayStation Memory Cards have 128 KB of space in an EEPROM**

7 - CD-ROM drive

Features:

- **2x, with a maximum data throughput of 300 KB/s**
- **XA Mode 2 Compliant**
- **CD-DA (CD-Digital Audio)**